CEM IR&D

Key Success Indicators of Integrated Project Teams in Civil Agencies

Enterprise Modeling Exchange 2008

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Agenda

- Research Background, Problem, Objective
- Research Process - Phases:
  1. Literature Search
  2. Interviews
  3. IPT KSI Model and Start-up Guide Development
- KSI Model and Start-up Guide
- Future Plans and Overall Impact of Research

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Background

- **Integrated**: Cross-functional input and analysis
- **Project:** During key phases of (or throughout) project lifecycle
- **Team:** Team-based decisions

- IPTs became popular in the commercial sector in the ’80s along with concurrent engineering approaches
- Usage in DoD culminated in promulgation of IPPD acquisitions policy in 1995
- Increasingly used in civil agencies with prime acquisition approaches
- Frequent Reliance on IPTs *yet LITTLE guidance reflecting Civilian Agency needs*

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Problem

- How to form IPTs
- How to sustain IPTs
- How to assess IPT risk/progress

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Overall Objective

Determine Key Success Indicators (KSIs) of IPTs
and how they can be applied
to create successful IPTs in the future
with a measurable positive impact on modernization efforts.

Where do IPT sponsors and IPT members need to focus their attention
in setting up and then sustaining an IPT?

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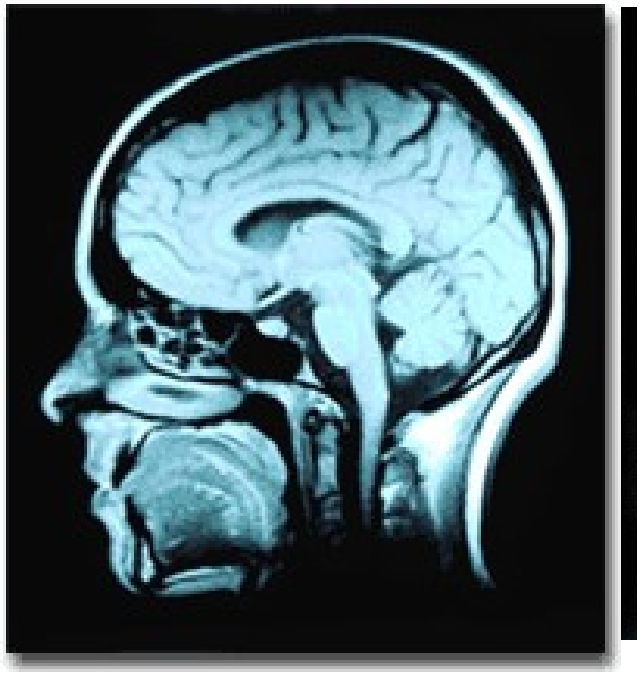
Why an IPT KSI Model?

- A vital additional tool not currently included in typical measures of project success
- A diagnostic of the IPT at a given point in time
- Helps IPT sponsors, managers and team members assess risk during start up and throughout lifecycle
- Sponsors, managers, and IPT members can quickly focus on specific corrections that require attention based on multiple possible success factors



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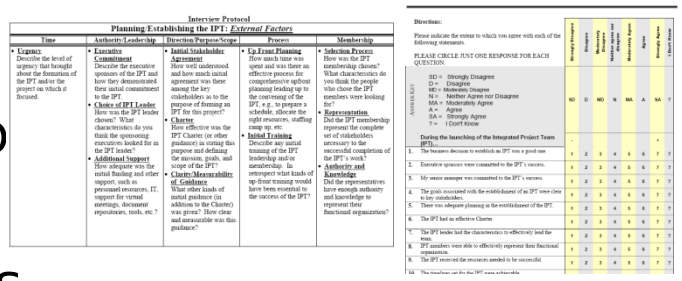
Research Process

Three Phases to Research:

1. **Literature Review of commercial/DoD/OB IPT KSIs**
   - Selected and reviewed artic (Commerc Organizational Behavior)
   - Coded articles by KSI theme
   - Consolidated themes

2. **Data Collection**
   - Conducted interviews with IPT particip
   - Coded interviews to themes
   - Administered survey to 33 participants


Interview Protocol
Planning/Establishing the IPT: *External Factors*

Time	Authority/Leadership	Direction/Purpose/Scope	Process	Membership
• **Urgency** Describe the level of urgency that brought about the formation of the IPT and/or the project on which it focused.	• **Executive Commitment** Describe the executive sponsors of the IPT and how they demonstrated their initial commitment to the IPT. • **Choice of IPT Leader** How was the IPT leader chosen? What characteristics do you think the sponsoring executives looked for in the IPT leader? • **Additional Support** How adequate was the initial funding and other support, such as personnel resources, IT, support for virtual meetings, document repositories, tools, etc.?	• **Initial Stakeholder Agreement** How well understood and how much initial agreement was there among the key stakeholders as to the purpose of forming an IPT for this project? • **Charter** How effective was the IPT Charter (or other guidance) in stating this purpose and defining the mission, goals, and scope of the IPT? • **Clarity/Measurability of Guidance** What other kinds of initial guidance (in addition to the Charter) was given? How clear and measurable was this guidance?	• **Up Front Planning** How much time was spent and was there an effective process for comprehensive upfront planning leading up to the convening of the IPT, e.g., to prepare a schedule, allocate the right resources, staffing ramp up, etc. • **Initial Training** Describe any initial training of the IPT leadership and/or membership. In retrospect what kinds of up-front training would have been essential to the success of the IPT?	• **Selection Process** How was the IPT membership chosen? What characteristics do you think the people who close the IPT members were looking for? • **Representation** Did the IPT membership represent the complete set of stakeholders necessary to the successful completion of the IPT's work? • **Authority and Knowledge** Did the representatives have enough authority and knowledge to represent their functional organization?

Integrated Project Team Effectiveness Survey

Direction:

Please indicate the extent to which you agree with each of the following statements.

PLEASE CIRCLE JUST ONE RESPONSE FOR EACH QUESTION

ANSWER KEY
SD = Strongly Disagree
D = Disagree
MD = Moderately Disagree
N = Neither Agree nor Disagree
MA = Moderately Agree
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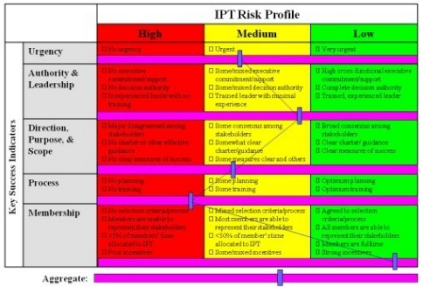
? = I Don't Know

During the launching of the Integrated Project Team (IPT)...	Strongly Disagree	Disagree	Moderately Disagree	Neither Agree nor Disagree	Moderately Agree	Agree	Strongly Agree	I Don't Know
	SD	D	MD	N	MA	A	SA	?
1. The business decision to establish an IPT was a good one.	1	2	3	4	5	6	7	?
2. Executive sponsors were committed to the IPT's success.	1	2	3	4	5	6	7	?
3. My senior manager was committed to the IPT's success.	1	2	3	4	5	6	7	?
4. The goals associated with the establishment of an IPT were clear to key stakeholders.	1	2	3	4	5	6	7	?
5. There was adequate planning in the establishment of the IPT.	1	2	3	4	5	6	7	?
6. The IPT had an effective Charter.	1	2	3	4	5	6	7	?
7. The IPT leader had the characteristics to effectively lead the team.	1	2	3	4	5	6	7	?
8. IPT members were able to effectively represent their functional organization.	1	2	3	4	5	6	7	?
9. The IPT received the resources needed to be successful.	1	2	3	4	5	6	7	?
10. The timeline set for the IPT were reasonable.	1	2	3	4	5	6	7	?

3. **Development of IPT KSI Model & Star Guide**
   - Analyzed data and validated with sample intervi
   - Prepared Model and Guide



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Literature Review/Extracted Themes

84 Articles

- 40 Themes
- 13 Thematic Areas

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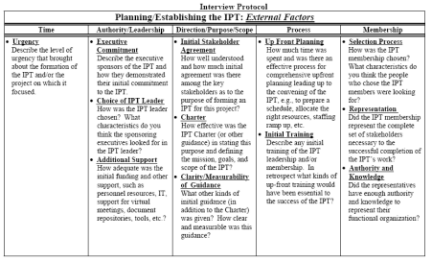
Data Collection



Interview Protocol

Planning/Establishing the IPT: *External Factors*

Time	Authority/Leadership	Direction/Purpose/Scope	Process	Membership
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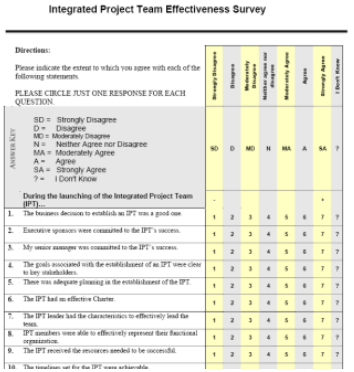
Conducted 58 interviews (60 individuals) across 19 IPTs



Integrated Project Team Effectiveness Survey

Directions:

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	Strongly Disagree (SD)	Disagree (D)	Moderately Disagree (MD)	Neither Agree nor Disagree (N)	Moderately Agree (MA)	Agree (A)	Strongly Agree (SA)	I Don't Know (?)
During the launching of the Integrated Project Team (IPT)...								
1. The business decision to establish an IPT was a good one.	1	2	3	4	5	6	7	?
2. Executive sponsors were committed to the IPT's success.	1	2	3	4	5	6	7	?
3. My senior manager was committed to the IPT's success.	1	2	3	4	5	6	7	?
4. The goals associated with the establishment of an IPT were clear to key stakeholders.	1	2	3	4	5	6	7	?
5. There was adequate planning in the establishment of the IPT.	1	2	3	4	5	6	7	?
6. The IPT had an effective Charter.	1	2	3	4	5	6	7	?
7. The IPT leader had the characteristics to effectively lead the team.	1	2	3	4	5	6	7	?
8. IPT members were able to effectively represent their functional organization.	1	2	3	4	5	6	7	?
9. The IPT received the resources needed to be successful.	1	2	3	4	5	6	7	?
10. The timelines set for the IPT were achievable.								

Administered 33 surveys to test potential format of model

Representation from 4 agencies: IRS, VA, US-VISIT, FINCEN

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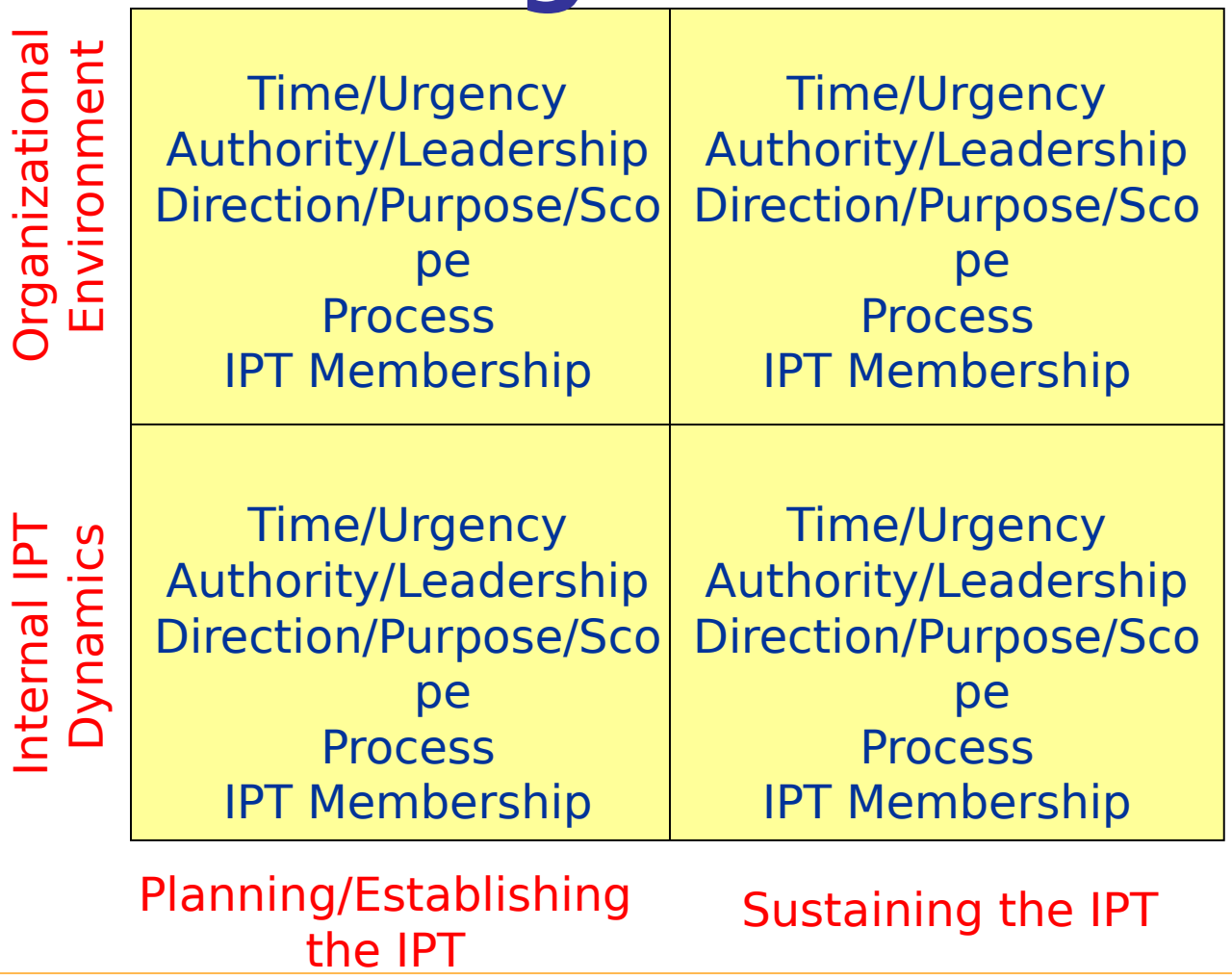
Interview Coverage

Data gathering covered five key process areas within four quadrants:



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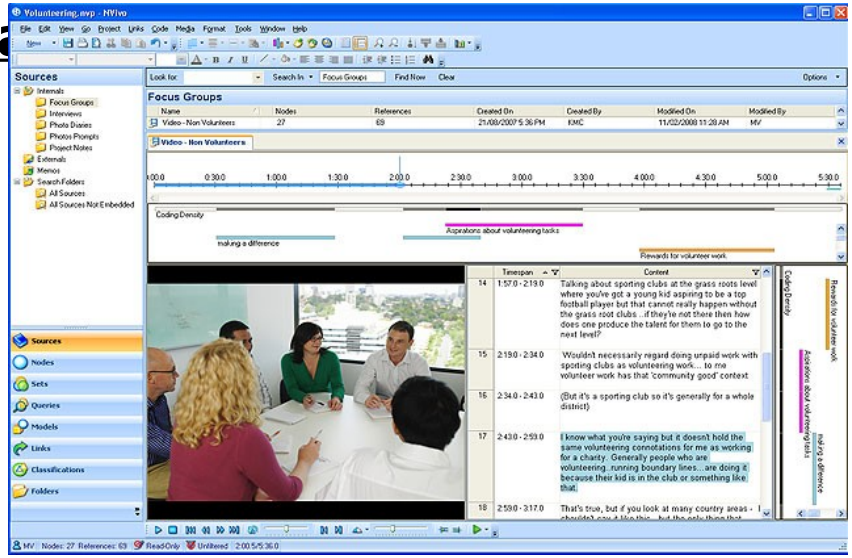
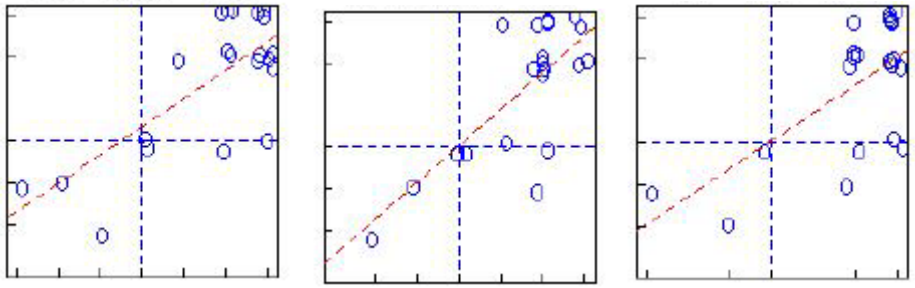
Interview/Survey Analysis

- **Using NVivo8, identified/coded the following:**
  - The **Five KSI Thematic Area**
    - Time Usage
    - Authority & Leadership
    - Direction, Purpose, & Scope
    - Process
    - Membership
  - **Best Practices**
  - **Worst Practices**



- **Conducted regression analysis on survey data**



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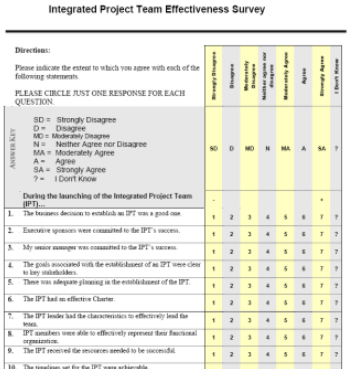
IPT Effectiveness Survey

- **30 items on IPT survey**
  - 13 items focused on IPT Start Up (Items 1-13)
  - 17 items focused on IPT Sustainment (Items 14
- **Survey completed by 33 respondents**
- **Survey Analysis**
  - Question 19 served as an indicator of IPT success:

  "The IPT (achieved its goals) produced its agreed-upon deliverables on time, within budget and scope."
  - Conducted statistical analysis to identify which items most strongly related to Question 19
  - Sustainment items generally had stronger correlations with Question 19 than Start Up items



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7.	The IPT leader had the characteristics to effectively lead the team.	1	2	3	4	5	6	7	?
8.	IPT members were able to effectively represent their functional organization.	1	2	3	4	5	6	7	?
9.	The IPT received the resources needed to be successful.	1	2	3	4	5	6	7	?
10.	The timelines set for the IPT were achievable.								

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Survey Findings: Start Up Phase

- **Start Up items that had the strongest relationship to Question 19 were:**

Survey #	R^2	Items
9	.254	The IPT leader had the characteristics (professional and personal) to effectively lead the team.
10	.178	The IPT members selected for this team had the right task experience/skills/knowledge.
4	.142	The IPT leader demonstrated commitment to the IPT's success by acknowledging this commitment either privately or publicly.
8	.122	The IPT members were able to impact the setting of team sub goals/measures that allowed them to create a shared vision for how to implement them.
11	.112	The IPT members selected for this team had the right interpersonal skills to work in a team environment (i.e., willing to sharing information; willing to collaborate).
13	.102	The timelines and goals set for the IPT were achievable given the resources and members assigned.

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Survey Findings: Sustainment Phase

- **Sustainment items that had the strongest relationship to Question 19 were:**

Survey #	R^2	Items
23	.591	The team leader coordinated our collective actions
26	.551	The team leader effectively managed the impact of the external environment (e.g., spanning organizational boundaries, monitored / informed us of events that impacted the team, removed roadblocks, suggested solutions).
22	.441	The team leader was actively engaged with the team (e.g., including team members in the decision making process, demonstrating fairness, respect, consideration)
29	.405	The team members had a sense of loyalty/trust with one another.
27	.376	The team members felt that the outputs of the team made a positive impact on our organization (i.e., accomplished its objectives, performed tasks that mattered to our organization)
17	.331	The amount/style of communication, including knowledge sharing, was effective.
15	.297	Our IPT leader maintained commitment to the IPT's successes and it was clear that the IPT was his/her main priority.

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Survey Findings: Regression Model

- **75% of the variance in IPT success can be explained by Q23, Q26, and Q10**
  - Q23: The team leader coordinated our collective actions
  - Q26: The team leader effectively managed the impact of the external environment (e.g., spanning organizational boundaries, monitored / informed us of events that impacted the team, removed roadblocks, suggested solutions)
  - Q10: The IPT members selected for this team had the right task experience/skills/knowledge

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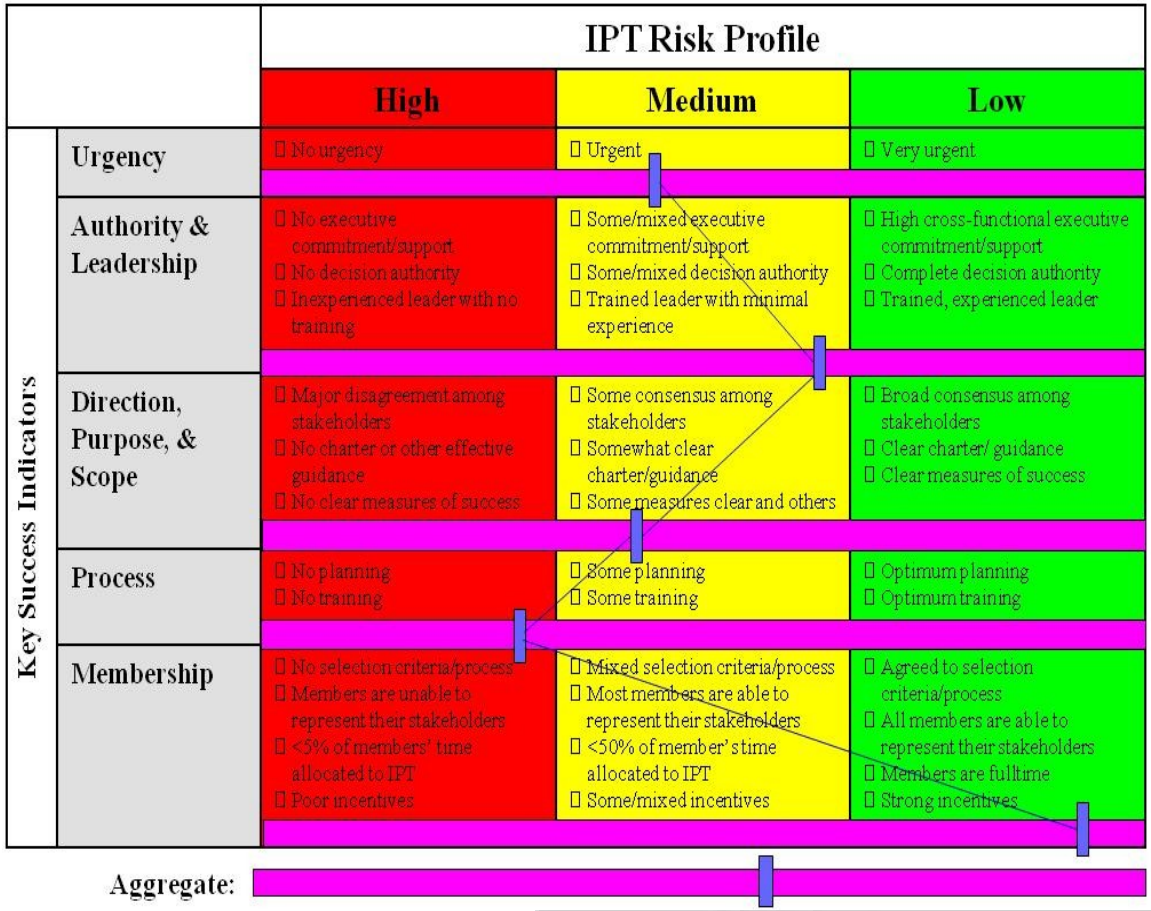
What does the IPT KSI Model Look Like?



- A dashboard that will indicate whether or not key success factors of an IPT are sufficiently present
- Produced from a survey of IPT members
- Assesses 5 categories of Key Success Indicators across 3 levels of risk
- Two versions:
  - Start-Up Phase
  - Sustainment Phase

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Survey to Risk Dashboard

The Survey will be used to construct an IPT Risk Profile using a standard dashboard format:

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	-						+	
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3. My senior manager was committed to the IPT's success.	1	2	3	4	5	6	7	?
4. The goals associated with the establishment of an IPT were clear to key stakeholders.	1	2	3	4	5	6	7	?

IPT Risk Profile

Key Success Indicators

	High	Medium	Low
Urgency	No urgency	Urgent	Very urgent
Authority & Leadership	No executive commitment/support No decision authority Inexperienced leader with no training	Some/mixed executive commitment/support Some/mixed decision authority Trained leader with minimal experience	High cross-functional executive commitment/support Complete decision authority Trained, experienced leader
Direction, Purpose, & Scope	Major disagreement among stakeholders No charter or other effective guidance No clear measures of success	Some consensus among stakeholders Somewhat clear charter/guidance Some measures clear, some others	Broad consensus among stakeholders Clear charter/ guidance Clear measures of success
Process	No planning No training	Some planning Some training	Optimum planning Optimum training
Membership	No selection criteria/process Members are unable to represent their stakeholders <5% of members' time allocated to IPT Poor incentives	Mixed selection criteria/process Most members are able to represent their stakeholders <50% of member's time allocated to IPT Some/mixed incentives	Agreed to selection criteria/process All members are able to represent their stakeholders Members are fulltime Strong incentives
Aggregate:			

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IPT Start-up Guide

- Used in conjunction **with the KSI Model**
- Based on **best practices** identified in literature review (commercial and DoD practice and organizational behavior literature) and interviews
- Covers both **internal** IPT structures and practices and the **external** programmatic and organizational structures

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Impacts

- Fills huge deficit in understanding a critical factor in our sponsor's modernization efforts: reliance on IPTs to effectively bring together key stakeholders.
- Important component in fulfilling IRS's "Integrator" Role (and that of Government in general)
- Skillful use of IPTs can potentially avoid the miscommunications, misunderstandings, and lack of coordination that can plague IT modernization projects.
- Could be incorporated into essential government practices:
  - FLC guidance

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Future Plans

- Submitted follow-up MIP/IR&D proposal to test the KSI Model with new IPTs – not funded
- Exploring other funding possibilities
- Publicize/socialize the IPT KSI Model
  - Within MITRE as standard systems engineering practice
  - As basis for potential work with MITRE customers (including DoD and FAA)
  - Publication and Conference Presentations
  - Through partnership with other organizations, e.g., SEI, PMI, IEEE, academic institutions with similar interests

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Further Information

SharePoint Site:

http://communityshare.mitre.org/sites/changemgmt/iptresearch/default.aspx

- Articles
- Theme compilation
- Interview protocol/survey
- Interview results (restricted)
- Model Development
- IPT Start-up Guide

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